tempts hatched on 15 and 19 June, 9–13 d earlier than the second brood from the double brooding pair. If we assume conservatively that only those broods with hatch dates after 28 June (the hatch date of the second brood we confirmed) were second broods, then approximately 4% of the kestrel pairs in southwestern Idaho raise second broods. Continued monitoring of marked adults should provide more insight about the frequency of double brooding in northern latitudes.

RESUMEN.—Una pareja marcada de *Falco sparverius* crió dos nidadas de cinco en una temporada en dos cajas de nidos diferentes en el sur oeste de Idaho. Los dos padres tenían el mínimo de dos años y tenían éxito con nidos en el lugar antes. Las dos crías eran primera y la mas tarde en la área de estudio, pero sospechamos que hasta 4% de parejas en el sur oeste de Idaho crían dos crías cada temporada.

[Traducción de Raúl De La Garza, Jr.]

ACKNOWLEDGMENTS

This paper is a contribution from the Snake River Field Station, Forest and Rangeland Ecosystem Science Center, Biological Resources Division, U.S. Geological Survey (formerly the National Biological Service's Raptor Research and Technical Assistance Center). We thank George Carpenter and Julie Heath for building boxes and collecting background data that allowed us to make these observations.

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Received 6 September 1996; accepted 10 May 1997

J Raptor Res. 31(3):276–279

FIRST NEST RECORD OF THE BARE-SHANKED SCREECH-OWL (*OTUS CLARKII*)

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KEY WORDS: *Bare-shanked Screech-owl*; Otus clarkii; *nest*; *Costa Rica.*

Most New World tropical forest raptors are poorly known, especially those restricted in distribution and habitat. An estimated one-half of Neotropical raptors, their nests, eggs and voices have never been described (Thiollay 1985). Most of the world's owl species occur in the tropics and their ecology and biology are little known (Clark et al. 1978).

Costa Rica contains 9.9% (17 species) of the 172 owl species (Monroe and Sibley 1993). The Bare-shanked Screech-owl (*Otus clarkii*) is a resident from the central mountains of Costa Rica (Central Cordillera, Talamanca

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Cordillera), Panamá (W Chiriquí, Veraguas and Darién) through NW Colombia (Cerro Tacarcuna in NW Chocó) (AOU 1983). It has been recorded in the highlands of Monteverde, Poás Volcano, Tapantí, Chirripo, Cerro de la Muerte, Cerro Chompipe and Villa Mills (Stiles and Lewis 1980). It is the only species of the genus *Otus* that inhabits cloud forest and humid forest at high altitudes (900–2350 m) in Costa Rica (Slud 1964). Its numbers are unknown, but it has been reported to be uncommon or rare in Costa Rica (Stiles and Skutch 1989). Almost no information is available on its breeding biology and nests remain undescribed (Wetmore 1968, Stiles and Skutch 1989). The only previous evidence of breeding by Bare-shanked Screech-owls in Costa Rica comes from the presence of brood patches on museum specimens (Stiles and Skutch 1989). In this paper, we describe what we consider to be the first Bare-shanked Screech-owl nest located in the mountains of central Costa Rica.

From 15–17 April 1994, we heard and observed what appeared to be a breeding pair of Bare-shanked Screech-owls in a pasture near the Tapantí Hotel, approximately 71 km south of Cartago City, Provincia de San José, Costa Rica (9° 35′N, 83° 45′W). It is close to Tapantí National Park and above Cerro de la Muerte at the top of the northwest Talamanca Cordillera with an elevation of 2490 m. Mean annual temperature in the area is 6°C and mean annual precipitation is 6500 mm. Typical vegetation is cloud forest and subalpine paramo, and includes oaks, bromeliads, orchids, mosses and ferns.

On 15 April 1994 at 1900 H, we heard a deep whistled *huu-huu-huu* much like the typical call of a Bare-shanked Screech-owl. When it stopped, we imitated the call and a small owl flew to a mossy branch approximately 5 m away from us. We identified the owl to be an adult Bare-shanked Screech-owl and recorded its calls that night. On the morning of the next day, a search of two isolated trees nearby failed to locate any roosting owls or any sign that owls had recently used the trees. However, at about one-half hour after sunset, we observed an adult female Bare-shanked Screech-owl flying and a male perched and calling in the two trees. We distinguished the female by her higher pitched call (Fig. 1). At approximately 1830 H, the female flew to a nest in a live oak (*Quercus copeyensis*). A fork in the trunk created a natural cavity where the bird nested. The tree had a dbh (diameter at breast height) of 65 cm and was 23 m tall. The nest was 3.3 m high and the cavity was 35 cm long and 64 cm wide.

On 17 April 1994, we observed a single nestling covered with down in the cavity that we estimated to be approximately 3-wk-old (Fig. 2). No nesting material was found but the nestling was on a large clump of moss. Habitat surrounding the nest tree consisted of scattered, tall oaks laden with epiphytes. Ground cover consisted of meadow grasses.

Both parents brought food to the nestling. We were unable to identify the prey that were delivered, but the items appeared to be large insects such as orthopterans and coleopterans. Many *Otus* species are mainly insectivorous (Ross 1969). Several times, the female flew from the nest to capture insects on the ground and returned quickly to give the food to the nestling. Occasionally the male perched on a lamp from which it caught insects. No pellets were found below the nest and we did not search for pellets inside the nest in order to avoid disturbance to the nest.

Otus is the largest genus in the order Strigiformes, and Monroe and Sibley (1993) list 46 species for this genus Marshall (1967) lists seven species of *Otus* occupying North and Middle America where they overlap without interbreeding. Most of them live in the world's tropical regions, except in Australasia, and many restricted populations of screech owls are now endangered species (Hekstra 1973). Our observations indicate that Bare-shanked Screech-owls probably breed from middle February (egg laying) through early May (fledging) in the Tapantí region. We estimated the breeding chronology based on Flammulated Owl (*Otus flammeolus*) in Colorado (Reynolds and Linkhart 1987). These findings are comparable with those reported by Stiles and Skutch (1989).

In view of limited geographic distribution of the Bare-shanked Screech-owl and its unknown breeding status, more information is needed on its nesting biology, nesting density and habitat affinities to address questions concerning its possible management and conservation Currently habitat loss is a major problem that threatens all raptor populations, and cloud forest habitats in central Costa Rica have been affected seriously by developments related to the dairy industry on highlands. Based on our limited knowledge of the breeding biology of the Bare-shanked Screech-owl, it may actually be the development of dairy farms which increase the numbers of isolated trees and lampposts for feeding. Any useful conservation strategy for the protection of Bare-shanked Screech-owls should at least protect woodlots as potential breeding sites.

RESUMEN.—Reportamos el primer registro de anidación de la Lechucita Serranera (*Otus clarkii*), encontrado en las tierras altas de Costa Rica. El nido se localizó en un árbol de encino (*Quercus copeyensis*) a una altura de 3.3 m en una cavidad natural con las siguientes dimensiones: 35 cm de largo y 64 cm de ancho. El nido contenía un pollo con una edad estimada de 3 semanas. Ambos padres alimentaban al pollo con insectos del orden coleóptera y ortóptera. No encontramos egagrópilas dentro ni fuera del nido. Se necesita más información sobre densidad poblacional y aspectos ecológicos para la Lechucita Serranera. Sin embargo, para establecer estrategias de conservación para esta especie, es importante incluir la protección de lotes arbolados para su reproducción.

[Traducción de Autores]

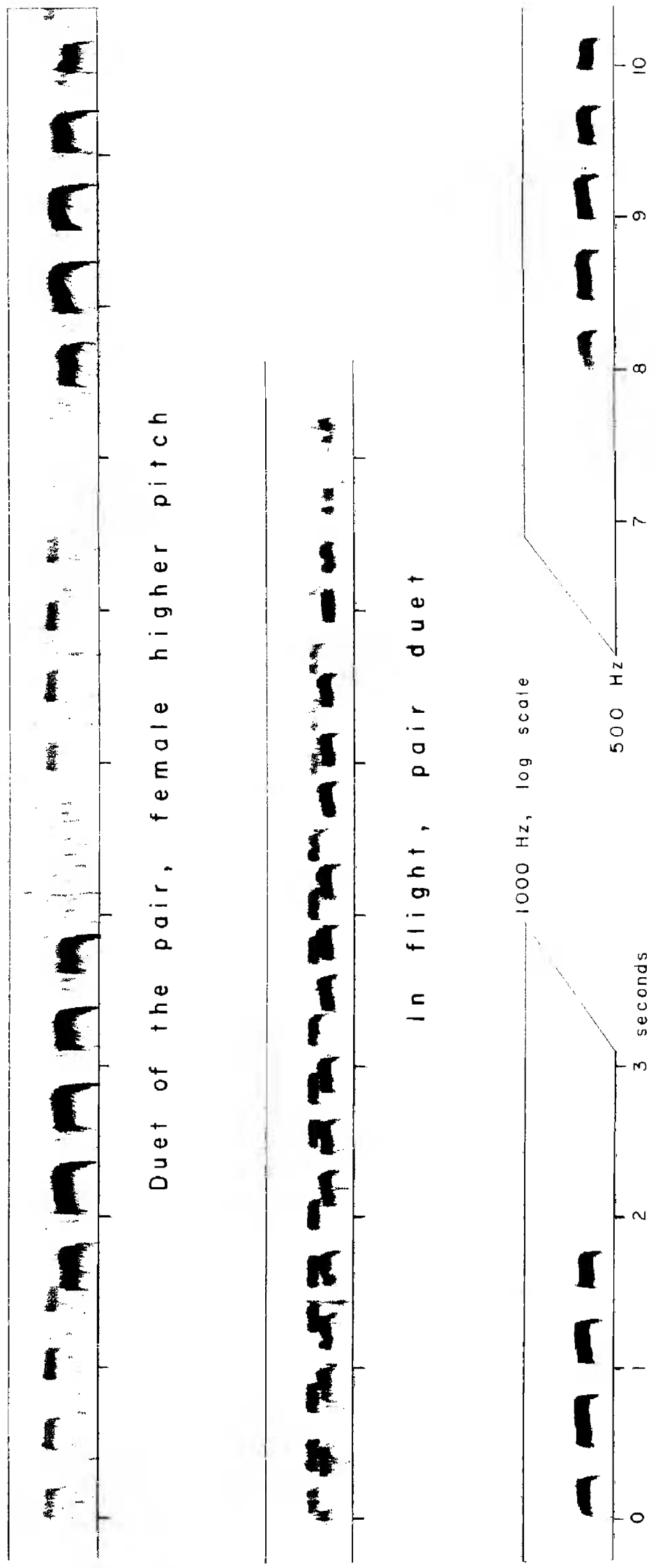

Figure 1. Three kinds of Bare-shanked Screech-owl calls digitally recorded over 14 min the night of 15 April 1994 near the Tapantí Hotel, approximately 71 km south of Cartago City, Provincia de San José, Costa Rica: a) duet of the pair, female higher pitch, b) pair duet in flight, and c) male solo.

Figure 2. The nest and nestling of the Bare-shanked Screech-owl pair near the Tapantí Hotel, Costa Rica.

ACKNOWLEDGMENTS

We wish to dedicate this article to the memory of Elsie Marshall.

We thank D.W. Holt, J.R. Belthoff and M. Ritchinson for their helpful comments to this manuscript.

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Received 12 July 1996; accepted 25 April 1997